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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/087,074	03/01/2002	Cynthia D. Walton	10125	1970
28006	7590	06/29/2004	EXAMINER	
HERCULES INCORPORATED HERCULES PLAZA 1313 NORTH MARKET STREET WILMINGTON, DE 19894-0001			AYLWARD, DAVID E	
			ART UNIT	PAPER NUMBER
			1712	

DATE MAILED: 06/29/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 10/087,074	Applicant(s) WALTON ET AL.	
	Examiner David E Aylward	Art Unit 1712	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-9, 11, 12, 14-22, 24, 25, 28 and 29 is/are rejected.
- 7) ☒ Claim(s) 10, 13, 23, 26 and 27 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |  |
|--|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)            |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>10/2003</u> . | 6) <input type="checkbox"/> Other: ____  |

1. Applicant's election of the nitrogen containing species of claim 11, ie azetidinium, alkeneimine and amines in the reply filed on 4/2004 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-9,11,12,14-22,24,25,28 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Smigo(5281307) in view of Cortigene(3600272), Devlin(3057833), Morrison in view of Lee and Neville, PL'185 and Sadler.

The fact that epoxy resins, ie. polyepoxides, are known crosslinking agents (Smigo , col 6, ll. 8-12) indicates that one epoxy ring on a molecule does not significantly reduce the reactivity of the other epoxy rings on that same molecule, Thus, in order to show that polymers bearing certain groups will be crosslinked with polyepoxy compounds, it is enough to show these groups are reactive with the epoxy rings. Smigo teaches the crosslinking of vinylamine polymers with epoxy resins, ie. polyepoxides (col. 4, ll. 31-43 and col. 6, ll. 8-11). Cortigene teaches the reaction of polyethyleneimine with a diepoxy compound (Abstract). The preparation of various polyallylamines, including polydiallylamine, is taught at col. 2, ll. 10-60 by Devlin . The reaction of these polyallylamines with polyepoxy compounds is taught at col. 4, l. 58-col. 5, l. 31 rendering the instant process claims obvious. Azetidinium, being cationic, is an electron-deficient species. Electron-deficient molecules are Lewis acids (Morrison, p.

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30, last two lines). Lewis acids are well-known curing agents, ie. react with epoxy rings (Lee and Neville, p. 11-1). Thus, it is obvious azetidinium groups react with epoxy rings. The abstract published by Chemical Abstracts is used as a guide to PL'185. The abstract shows that this reference teaches a variety of polyamineamide resins, ie. the polyamidoamines of the instant claims, react with epoxy rings. Sadler teaches proteins are crosslinked with epoxy resin (Abstract, col. 3, ll. 28-34). Thus, for reasons explained initially, since all the nitrogen-containing species of the instant claims react with the epoxy ring, it is obvious that polymers bearing these groups will be crosslinked with polyepoxide compounds. It is further obvious the process of crosslinking is reacting two or more epoxy rings in the same molecule with two or more polymers and will lead to a new polymer of two or more times the weight of the initial polymers.

4. Claims 10, 13, 23, 26 and 27 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

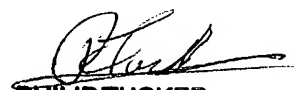
5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mr. Aylward whose telephone number is (571) 272-1083. The examiner can normally be reached on Monday through Friday from 7:30 to 4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Jagannathan, can be reached on (571) 272-1119. The fax phone number for this Group is (703) 872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either private PAIR or public PAIR. Status information for unpublished applications is available through private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

*Dea*

6/24/04

  
PHILIP TUCKER  
PRIMARY EXAMINER  
ART UNIT 1712